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METHOD OF PROCESSING BLOOD

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This invention relates to a method of process-
ing blood and especially animal blood, and prod-
ucts made therefrom.

Heretofore it has been the practice to add so-
dium citrate, sodium lactate and the like to
blood to prevent or check coagulation of blood,
whereby the fibrin may be held in solution. Blood
so treated has been used in the prepara-
tion of cold glue; it has also been used for the
making of blood sausage and other articles of
food made from or with animal blood. Because
of the intense color of blood, the use of blood
treated with admixtures to hold the fibrin in so-
lution, is very limited in the arts.

In accordance with this invention, the useful
field for fibrin containing blood may be enor-
mously increased if the blood be processed in a
suitable manner. For instance, the blood may
be processed by adding thereto admixtures which
hold the fibrin in solution and check or prevent
coagulation thereof, and then dividing or sepa-
rating the blood so treated into liquid fibrin con-
taining serum and into essentially fibrin-free
separable blood corpuscles.

The fibrin containing serum has essentially all
the properties of the fibrin contained in blood
in which the coagulation has been checked or
prevented with the exception that the undesir-
able blood color is avoided.

In the practice of the invention it is preferred
that the separation of the fibrin containing
serum from the blood corpuscles be carried out
quickly and as soon as possible after the admix-
tures have taken effect.

While it is known that sodium citrate, sodium
lactate and the like have been used as additions
to blood to hold the fibrin in solution, this inven-
tion contemplates the use also of salts of water
poor phosphoric acids such as have a water of
constitution less than that of the orthophos-
phoric acids, for example, salts of the pyro, meta,
and polyphosphoric acids. The use of these
phosphoric acid salts has the especial advan-
tage in that the separation of red blood cor-
puscles from the serum may be effected more
quickly and easily.

Since the phosphates in question are gen-
erally cheaper than for example the heretofore
used sodium citrate and sodium lactate, and since
smaller quantities of the phosphates, for exam-
ple sodium pyrophosphate or metaphosphate, are
required, economies may be realized.

The red corpuscles can be separated from the
blood in the simplest manner by settling, al-
though it is preferred to make this separation by

centrifuging or filtering. The settling method
is not to be used where maximum separation of
the red corpuscles is desired, because with the
settling process the red blood corpuscles remain
partly attached to or in solution with the serum.

For many purposes it is advantageous to con-
centrate or to dry the fibrin containing blood
serum and this step may be carried out under the
same conditions by which coagulation of egg al-
bumin is avoided as for example evaporation un-
der reduced pressure. Also, the separated, essen-
tially free from fibrin material can be further
dewatered and/or fully dried by heat treatment
under reduced pressure.

The fibrin containing blood serum has proper-
ties that resemble strongly the white of chicken
eggs, milk casein and also gelatine, so that the
fibrin containing blood serum can be applied, if
necessary, in concentrated or also in dry form,
in the practice of this invention, as a substitute
or partial substitute for the above mentioned sub-
stances that were formerly used, and especially
to cases where the white of chicken eggs has
been used.

The fibrin containing blood serum can be used
among other things as a base for glue and/or
adhesives instead of bone and/or casein glue, as
well as for cold glue which has heretofore been
prepared from fibrin containing blood. In the
preparation of glue an advantage is to be gained
by the use of fibrin containing blood serum in
that it has a light color so that such glue is
rendered suitable for the manufacture of wood
veneers and paper products where the dark color
of the prior art blood glue has been objectionable.

The fibrin containing blood serum has proved
to be very suitable for the manufacture of meat
products, especially as binding material, for ex-
ample in place of gelatine which has been widely
used heretofore; and in regard to this it may be
used in liver and meat sausage to increase its
nutritive value.

Also in the preparation of preserved meats,
pickled meats and jellies, the fibrin containing
blood serum provides an excellent binding ma-
terial. The use of fibrin containing serum also
makes possible the use of the most essential and
the most valuable food ingredients of the blood.
Prior to this invention the meat products indus-
try could not make use of these blood ingredients
to the extent which this invention makes possi-
ble, because such products would not be accept-
able on account of the blood color. In accord-
ance with this invention a blood fibrin serum may
be used in the manufacture of products such as